

he recorded from counties in Kentucky. Plate XVII shows *Asplenium ebenoides*. According to this source, "Professor Wildberger" collected *A. ebenoides* in Franklin County in 1878. Apparently this is the earliest published record for this hybrid in the state.

I wish to thank Conrad Morton for identifying the plant, and Donald Willoughby for giving the specimens to the National Herbarium.—THOMAS A. HUTTO, *Biology Department, School of the Ozarks, Point Lookout, Missouri.*

Recent Fern Literature

FLORA OF SOUTHEASTERN WASHINGTON AND OF ADJACENT IDAHO. 3rd Ed., by Harold St. John. Outdoor Pictures, Escondido, Calif. xxix, 1-583. 1 map, 11 figs. October 1963. \$6.95.—The second edition, which appeared in 1956, included about 30 pages of addenda which have now been incorporated into the 3rd edition. The present book is essentially a facsimile reprint of the former editions with some additions and corrections. The sequence of families of angiosperms follows Engler & Prantl. Within each family the genera are arranged alphabetically, as are the species in each genus.

One of the notable features of the 3rd edition is a revised taxonomy of ferns, particularly in the delimitation of families along lines proposed by R. C. Ching, E. B. Copeland, R. E. Holttum, and others, although apparently these authors are not mentioned. There is no evidence of ordinal concept, but there are three classes, with Filicineae inserted between Lycopodineae and Equisetineae. The families of ferns begin with Ophioglossaceae and end with Marsileaceae, with the old "Polypodiaceae" represented by eight families. For one of these, the name Cheilanthaceae would have been preferable to Sinopteridaceae. The families are arranged in the key on p. xviii into two groups according to whether the rhizome is dictyostelic, protostelic or solenostelic.

The book is clearly printed and well-bound and will continue to be useful for identifying plants growing in southeastern

Washington and adjacent areas. The author is to be congratulated on having kept the book more or less up to date, and the publisher on having produced an attractive, handy volume.—G. NEVILLE JONES, *University of Illinois, Urbana, Illinois.*

FERN MATERIAL USED IN RESEARCH ON MORPHOGENESIS AND PHOTOPERIODISM.—For thirty years and more ferns have provided material for important research in fundamental problems of differentiation of tissues and organs. Leading work has been carried on in England by Wardlaw and his students and by Wetmore and his aides at Harvard. In a recent paper¹ DeMaggio and Wetmore reported successful excision and culture on nutrient media of young embryos of *Todea barbara*, an Australian member of the *Osmunda* family. When embryos that had become spherical, 5-7 days after fertilization of the egg, are used the embryo could be carried to independent growth, with a root-stem-leaf system, on the medium. With one-celled embryos, however, multicellular structures would be produced, but they were without tissue organization and resembled prothallia.

Another pair of experimenters² report the effects of exposure to red light on early stages of the prothallia of *Onoclea sensibilis*. Like most fern spores, those of *Onoclea* require light to germinate. When germinated spores are then placed in darkness, growth is in the form of a slender filament. Brief exposure to red light will increase the rate of growth (elongation) of these filaments to about the 12th day. Thereafter, the elongation rate is reduced by exposure to red light.—RALPH C. BENEDICT, *Pilot Knob, New York.*

JOE, BARBARA. Species of *Dryopteris* Cultivated in California. *Baileya* **11**(4): 117-130. Illus. 1963.—Provides a key, brief descriptions and good photographs of each of eight taxa.

¹DeMaggio, A. E. and R. H. Wetmore. Growth of Fern Embryos in Sterile Culture. *Nature* **191** (4783): 94-95. 1961.

²Miller, John H., and D. R. Wright. An Age-Dependent Change in the Response of Fern Gametophytes to Red Light. *Science* **134** (3490): 1629. (Nov. 17) 1961.